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New Records of Two Penaeoid Shrimps (Crustacea: Decapoda) from Korean Waters

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Two penaeoid shrimps, *Hadropenaeus lucasii* (Bate, 1881) and *Sicyonia truncata* (Kubo, 1949), were collected from the northeastern waters of Jeju Island, Korea. These represent the only Korean reports of a member of the genus *Hadropenaeus*, family Solenoceridae and of a member of family Sicyonidae, respectively. Morphological descriptions and illustrations with a color photograph of each species are given. Korean Penaeoidea presently includes 27 species in three families.

Key words: *Hadropenaeus lucasii*, *Sicyonia truncata*, Penaeoidea, Decapoda, Korea, New record

Introduction

Korean penaeoid shrimps comprise 25 species in two families (Kim and Kim, 1997; Cha et al., 2001; Kim et al., 2002; Kim et al., 2003; Kim and Choi, 2003; Kim et al., 2006; Kim et al., 2007). Recently, the number of species reported from Korean waters has been continuously increasing. From the northeastern waters of Jeju Island, two species of penaeoid species, *Hadropenaeus lucasii* (Bate, 1881) and *Sicyonia truncata* (Kubo, 1949), previously unreported from Korea, were collected by bottom otter trawl at a depth of 77 m. These are new members of the Korean carcinological fauna as well as the only known Korean member of the genus *Hadropenaeus* and the family Sicyonidae, respectively. Morphological descriptions and illustrations with a color photograph are given for each species.

Materials and Methods

Specimens examined have been deposited with the Fisheries Resource Management Division, National Fisheries Research and Development Institute (NFRDI). Postorbital carapace length (CL) is used as the standard length of the specimens for measurements, and the terminology primarily follows Pérez Farfante and Kensley (1997).

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Results and Discussion

Family Solenoceridae
***Hadropenaeus lucasii* (Bate, 1881)**
(New Korean name:
Maekkeun-daerong-suyeom-saewoo)
(Figs. 1, 3A)

Restricted synonymy

Solenocera lucasii - Bate, 1881:185 [type locality: Kai Island, Indonesia].
Pleoticus lucasii: Bate, 1888: 227, pl. 42, fig. 4.
Hymenopenaeus lucasii - Kubo, 1949: 213, figs. 8B, 20Q, 27K-N, 66O, P, 72C, I, 80H, 91, 92A-C.
Hymenopenaeus lucasi - Crosnier, 1978: 115, figs. 37f-h, 39c, 43a, 44.
Hadropenaeus lucasii - Pérez Farfante, 1977: 327, figs. 9, 16, 44C, 53-55; Hayashi, 1986: 43, 232, unnumbered fig.; 1992: 171, figs. 93, 94, 97., Miyake, 1998: 5, pl. 2, fig. 1; Dall, 1999: 560, fig. 5; 2005: 413.

Material examined: Southeastern waters of Jeju Island, 77 m, bottom otter trawl, October 2, 2008, one male (CL 8.4 mm), NFRDI-CR 20100906-1.

Description: Carapace almost entirely glabrous, with some pubescence in rostral and dorsoanterior area (Fig. 1A). Rostrum reaching as far as first segment of antennular peduncle; upper margin straight with seven teeth including epigastric tooth; epigastric tooth

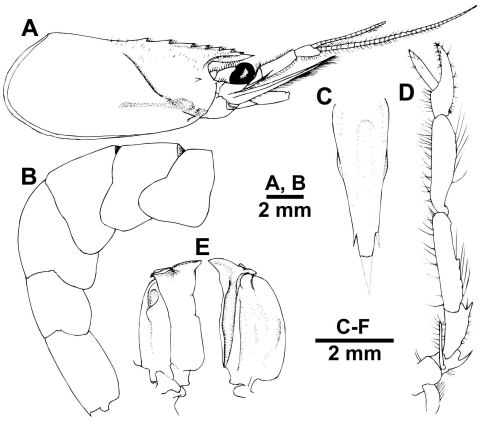

Fig. 1. *Hadropenaeus lucasii* (Bate, 1881), male (CL 8.4 mm) from the northeastern water of Jeju Island. A, carapace and cephalic appendages, lateral; B, abdomen, lateral; C, telson, dorsal; D, right first pereopod, lateral; E, right piece of petasma, dorsal (left) and ventral (right).

and first rostral tooth separated by equal intervals (Fig. 1A). Postorbital, antennal, hepatic and branchiostegal spines well defined. Cervical sulcus almost reaching middorsum; hepatic sulcus shallow (Fig. 1A). Antennular flagella longer than carapace length, upper flagellum subcylindrical (Fig. 1A). Abdomen with well-developed middorsal carina on third to sixth somites, rounded on third somite, keel like on fourth to sixth somites (Fig. 1B). Telson with a pair of lateral immovable spines (Fig. 1C). First pereopod with long spine on basis and ischum, small spine at mid-length of merus (Fig. 1D). Second pereopod with long spine on basis. Fourth and fifth pereopods with anteromedian small spine on each coxa. Petasma with ventral costa free from heavy sclerotization, platelike terminal part of ventral lobule (Fig. 1E).

Coloration in freshly preserved specimen: Rostrum pinkish blue; carapace red to pink; abdomen light pink dorsally, reddish pink ventrally; appendages red (Fig. 3A).

Distribution: Indo-West Pacific region: Mozambique to Indonesia, northwestern and eastern Australia, Japan to Hawaii and Wallis and Futuna Islands; 121-698 m (Dall, 2005). Southeastern waters of Jeju Island at 77 m in this study.

Size: Maximum CL 24.2 mm in female (Hayashi, 1986).

Remarks: Korean Solenoceridae includes three genera, *Solenocera*, *Haliporides* and *Hymenopenaeus*. *Hadropenaeus lucasii* is the first representative of its genus from Korea. The genus *Hadropenaeus* is distinguished from the aforementioned three genera by the following combination of characteristics: (1) the upper antennular flagellum is subcylindrical; (2) the epigastric tooth and the first rostral tooth are separated by an interval equal to or only slightly greater than that between the first and second rostral teeth. *Hadropenaeus* is represented by four species, occurring mainly in temperate and tropical regions of the world. In East Asian waters, only *H. lucasii* has been reported.

Family Sicyonidae
***Sicyonia truncata* (Kubo, 1949)**
(New Korean name: *Bawi-saewoo*)
(Figs. 2, 3B)

Restricted synonymy

Eusicyonia truncata - Kubo, 1949: 456, figs. 8M, 48F, 77A, G, 79J, 156E, 158. [type locality: Kumanonada Sea, Japan].

Sicyonia truncata - Starobogatov, 1972: 412, pl. 11, fig. 152a, b; Kensley, 1972: 24, fig. 10C; Burukovsky, 1991: 36, fig. 1 (1-18); Hayashi, 1992: 152, 162, figs. 87d, 88d, 89b, c, 90c; Takeda and Hanamura, 1994: 11, fig. 5a-d; Crosnier, 2003: figs. 21, 22, 107B-D.

Sicyonia laevis - Rathbun, 1906: 908, pl. 20, fig. 7.

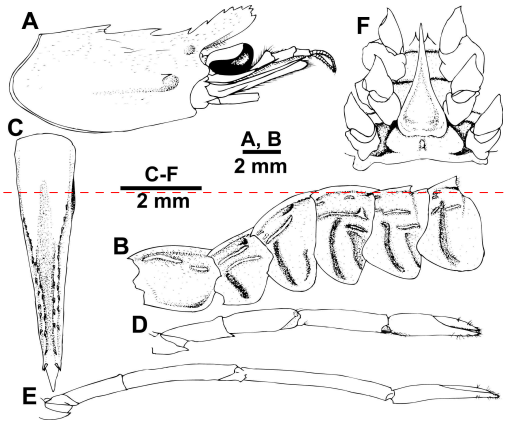

Fig. 2. *Sicyonia truncata* (Kubo, 1949), female (CL 8.2 mm) from the northeastern water of Jeju Island. A, carapace and cephalic appendages, lateral; B, abdomen, lateral; C, telson, dorsal; D, right first pereopod, lateral; E, right second pereopod, lateral; F, thelycum.

Material examined: Southeastern waters of Jeju Island, 77 m, bottom otter trawl, October 2, 2008, one female (CL 8.2 mm), NFRDI-CR 20100906-2.

Description: Body tomentous (Fig. 2A, B). Rostrum subrectangular in lateral view, directed upward at angle of 30°, extends little beyond distal end of first antenular segment, distal depth three times as long as length, with one tooth at distoventral angle, six teeth on dorsal margin (Fig. 2A). Postrostral carina sharply defined, reaching to posterior margin of carapace, bears two teeth, anterior tooth located at 1/3 of carapace and posterior tooth at 2/3; infraorbital lobe rounded distally, lacking spine; hepatic spine distinct (Fig. 2A). Abdomen dorsally carinated; each carina of first two somites with acute spine anteriorly, that of sixth somite ending in sharp spine directed backward, those of first four somites grooved dorsally and incised posteriorly; pleura of first four somites rounded ventrally, that of fifth somite armed with spine projecting backward (Fig. 2B). Telson with pair of lateral immovable spines subterminally, seven or eight small spines dorsally 11 or 12 small spines dorsolaterally (Fig. 2C). First pereopod with long spine on basis and ischum (Fig. 2D). Second pereopod with small spine on basis, without spine on ischum (Fig. 2E). Third pereopod without spine on basis and ischum. Thelycum consists of two closely set flat plates, anterior plate inverted funnel like with sharply pointed long apical spine, though without notch on each lateral rim; posterior plate with median small carina; no sulcus between anterior and posterior plates (Fig. 2F).

Coloration in freshly preserved specimen: Generally reddish pink; posterovental parts of carapace and first to fifth abdominal somites whitish pink; pereopods red; pleopods and uropods whitish brown (Fig. 3B).

Distribution: Indo-West Pacific region: South Africa, Madagascar to Indonesia, NE Australia, Fiji, Tonga, New Caledonia, Vanuatu, Japan to Hawaii; 125-510 m (Crosnier, 2003). Southeastern waters of Jeju Island, at 77 m in this study.

Size: Maximum CL 13.9 mm in female (Crosnier, 2003)

Remarks: In Korea, the superfamily Penaeoidea contains two families, Penaeidae and Solenoceridae. *Sicyonia truncata* is the first member of the family Sicyoniidae recorded from Korea. The family is easily distinguishable from the Penaeidae and Solenoceridae by its rigid and stony integument and uniramous third to fifth pleopods, lacking endopods. Sicyoniidae consists of only one genus *Sicyonia* which contains 54 species worldwide. Fifteen species have been reported from East Asian waters. Of these, *S. truncata* differs from East Asian congeners by the following combination of characteristics: (1) the middorsal carina of the carapace has two teeth (Fig. 2A); (2) the rostrum is not convergent distally and is truncate in lateral view, and the distal depth of the rostrum is three times the rostral length (Fig. 2A); (3) the infraorbital lobe is rounded distally and lacks a spine (Fig. 2A); (4) a tooth is present on the dorsoanterior of the second abdominal somite (Fig. 2B); and (5) the pleon of the fifth abdominal somite has a tooth posteroventrally (Fig. 2B).

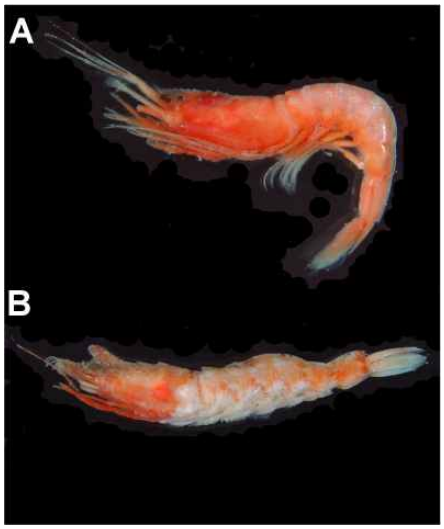

Fig. 3. Two penaeoid shrimps from Korea.
A, *Hadropenaeus lucasii* (Bate, 1881), male (CL 8.4 mm) from the northeastern water of Jeju Island; B, *Sicyonia truncata* (Kubo, 1949), female (CL 8.2 mm) from the same locality.

Acknowledgments

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